

10. CONCLUSION:

Building an Effective and Fair Climate Protection Architecture

Kevin A. Baumert and Silvia Llosa

As the Kyoto Protocol comes into force, the climate protection debate will focus increasingly on improving and expanding the regime's architecture in the era beyond Kyoto's first commitment period. Official negotiations could begin between 2003 and 2006. The approaches to climate protection analyzed in this volume suggest a wide variety of future possibilities for the evolution of the climate regime, some of which are examined here for the first time.

Crafting future agreements will require governments to converge on a mutually agreeable course of action, as decisions are made by consensus under the Climate Convention. Yet, as several studies in this volume reflect, governments act in their own interests, even in trying to address a global problem such as climate change. Aslam illustrates in Chapter 8 that climate protection proposals tend to primarily benefit their proponents, rather than strive to meet the needs of all countries. Reconciling these realities with the need to slow and eventually reduce global greenhouse gas (GHG) emissions over the coming decades is a paramount challenge. What might the features of a successful climate protection architecture look like? Is there a winning combination of elements among the options and approaches outlined in this volume? This chapter responds to these questions.

I. Interests and Architecture

To begin, none of the approaches examined can satisfy the interests and concerns of all countries. Table 10.1 amply illustrates this, presenting the advantages and disadvantages of various approaches as catalogued by the authors of this volume's respective chapters. The results should not be surprising. Disparate economic conditions, demographic profiles, values, and other unique factors prevent any single approach from suiting the

Table 10.1. Summary of Major Advantages and Disadvantages of Selected Climate Protection Approaches

Approach	Major Advantages	Disadvantages/Challenges
Kyoto Protocol-Style Targets <i>Extending fixed targets to developing countries with links to flexibility and accountability mechanisms</i>	<ul style="list-style-type: none"> ▪ Familiarity and simplicity ▪ Advance knowledge of environmental benefits ▪ Flexibility in implementation ▪ Respects national circumstances 	<ul style="list-style-type: none"> ▪ Limited political acceptability ▪ Data requirements ▪ Incentives to establish weak targets
Sustainable Development Policies and Measures (SD-PAMs) <i>Voluntary action oriented around sustainable development</i>	<ul style="list-style-type: none"> ▪ Builds on national sustainable development priorities ▪ Respects national circumstances ▪ Easily integrated into Kyoto Protocol ▪ No emissions cap 	<ul style="list-style-type: none"> ▪ Ensuring action and accountability ▪ Measuring climate benefits ▪ Financing
Sector-Clean Development Mechanism (Sector-CDM) <i>Sector-wide market mechanism</i>	<ul style="list-style-type: none"> ▪ Familiarity and compatibility with the Protocol ▪ Development benefits ▪ Rests on the polluter pays principle ▪ Gradual capacity building ▪ Cost-effectiveness ▪ No emissions cap 	<ul style="list-style-type: none"> ▪ Relies on Annex I investment ▪ Technical requirements and capacity ▪ National coordination effort ▪ Political opposition
Dual-Intensity Targets <i>Two dynamic targets with links to flexibility and accountability mechanisms</i>	<ul style="list-style-type: none"> ▪ Reduced economic uncertainty in establishing targets ▪ Reduces risk of hot air targets ▪ Potentially easier to agree on dual targets 	<ul style="list-style-type: none"> ▪ Data requirements ▪ Complexity ▪ Interactions with international emissions trading ▪ Lack of environmental certainty
Adaptation of Brazilian Proposal, as suggested in Chapter 7 <i>Fixed target, global allocation scheme with links to flexibility and accountability mechanisms</i>	<ul style="list-style-type: none"> ▪ Procedural fairness and simplicity ▪ Science-driven ▪ Rests on established principles ▪ Compatibility with Kyoto Protocol mechanisms ▪ Rewards of early developing country action 	<ul style="list-style-type: none"> ▪ Data requirements ▪ Limited global acceptability ▪ Limited flexibility for varying country circumstances
Per Capita-Based Entitlements <i>Fixed targets, global allocation scheme with links to flexibility and accountability mechanisms</i>	<ul style="list-style-type: none"> ▪ Procedural fairness and simplicity ▪ Strong ethical basis ▪ Enhances cost-effectiveness through global trading ▪ Incentives for developing country participation ▪ Amalgamates well with the Kyoto architecture 	<ul style="list-style-type: none"> ▪ Limited global acceptability ▪ Limited flexibility for varying country circumstances ▪ High dependence on trading for success

circumstances and interests of all countries. Chapters 8 and 9, for example, show that allocation approaches, such as those based on a relative responsibility or per capita principle, tend to distribute benefits and burdens in a way that some countries might find unacceptable, at least in the near term.

The differences in national circumstances and interests are evident in this volume's case studies on Sustainable Development Policies and Measures (SD-PAMs), Sector-Clean Development Mechanism (Sector-CDM), and dual-intensity targets. South Africa, for instance, would likely fare poorly if emission-limitations commitments were determined through relative responsibility or per capita-based differentiation principles. However, given its social and economic situation—including political commitments to sustainable development—South Africa might be favorably inclined toward an approach such as SD-PAMs. Mexico's commitment to improving local air pollution—as well as the high concentration of emissions in the capital area—makes Sector-CDM attractive. South Korea has a rapidly growing economy where future emissions are highly uncertain; hence, the suitability of dual-intensity targets.

Avoiding false comparisons, however, is important. Although this volume analyzes different approaches side by side, none of them articulates a complete architecture.¹ Rather, the approaches generally depict one or a few elements that could form part of a broader near- or long-term climate protection architecture. Fixed and dual-dynamic targets (Chapters 2 and 5), for example, address the form, or type, of commitment that governments might adopt, but not how that commitment might be differentiated from other countries' commitments. Furthermore, some approaches also vary by the time frame under which they could be made operational. Thus, a coherent architecture is not a matter of picking one of the approaches examined in this volume, just as a homebuilder would not want to choose between using doors and windows. Table 10.2 matches the approaches examined in this volume with their respective, sometimes overlapping, architectural elements. These elements were described in detail in Chapter 1.

Likewise, the approaches examined attempt, in most cases, to address different problems or challenges. For example, for many developing countries, climate protection is not a priority. Thus, sustainable development might be a more compelling issue around which to organize action, as illustrated in Chapter 3 on SD-PAMs. Table 10.3 shows the different challenges that the approaches seek to address, including investment needs (Sector-CDM), the reduction of cost uncertainties (dual-intensity targets), procedural fairness, and differentiation of commitments (principle-based allocation approaches). Each one of the approaches examined in this volume is relevant for thinking about how best to overcome particular obstacles that are important to different countries.

Table 10.2. Elements of a Climate Protection Architecture Found in Selected Approaches

Element of Architecture	Options and Examples (chapter number)
Legal Nature of Commitment	1. Binding: emission targets (2, 5, 7, 8) 2. Non-binding: SD-PAMs (3); Sector-CDM (4); targets (2, 5)
Type of Greenhouse-Gas Limitation Commitment	1. Fixed target: Kyoto Protocol (2); Brazilian Proposal (7); per capita entitlements (8) 2. Dynamic target: Dual-intensity targets (5); Argentine target (6) 3. Dual target: Dual-intensity targets (5) 4. Sustainable development: SD-PAMs (3)
Coverage and Scope of Actions	1. Project: Kyoto Protocol's CDM (2) 2. Sector: Sector-CDM (4) 3. National: Targets (2, 5) 4. Global: Responsibility-based targets (7); per capita-based entitlements (8)
Approach to Differentiating Commitments	1. Pledge-based: fixed (2) and dual-intensity (5) targets; SD-PAMs (3) 2. Principle-based: Brazilian Proposal (7); per capital entitlements (8)
Financial and Other Commitments	Funding for implementation: SD-PAMs (3); implicit in other approaches
Use of Market-Based Mechanisms	1. Project or sector-based trading: Kyoto Protocol (2); SD-PAMs (3); Sector-CDM (4) 2. International emissions trading: Possible with fixed (2) and dual-intensity targets (5); Brazilian Proposal (7); per capital entitlements (8)

Notes: There are other elements of the architecture not shown above, such as *environmental objective* and *gases* covered, where all of these approaches are flexible.

Abbreviations: Sustainable Development Policies and Measure (SD-PAMs), Clean Development Mechanism (CDM).

II. Designing a Menu of Near-Term Options

An overarching lesson emerging from this volume is that the climate protection architecture can be designed to accommodate multiple, sometimes conflicting, interests and national circumstances. In this regard, governments might consider adopting several options for country participation in the near term. Some of the approaches may operate simultaneously in a way that supports a menu-based strategy. Such a strategy could at once address the needs of many different countries, but through different channels of participation.

For example, the SD-PAMs and Sector-CDM could be mutually reinforcing mechanisms. The former provides a platform for promoting cleaner development, while the latter could encourage investment in specific sus-

Table 10.3. Key Challenges Addressed by Selected Climate Protection Approaches

Approach	Major Challenge(s) Addressed
Fixed, Kyoto Protocol-Style Targets (Chapter 2)	Ensuring environmental certainty
Sustainable Development Policies and Measures (Chapter 3)	Promoting sustainable development in developing countries
Sector-Clean Development Mechanism (Chapter 4)	Financing emission reductions and sustainable development in developing countries
Dual-Intensity Targets (Chapter 5)	Reducing cost uncertainties
Brazilian Proposal (Chapter 7) Per Capita Entitlements (Chapter 8)	Promoting procedural fairness; differentiating greenhouse-gas limitation commitments at the country level

tainable development policies that also deliver climate benefits. Similarly, fixed and dynamic targets could operate in different countries simultaneously. Dual-intensity targets (one kind of dynamic target) might provide a safety valve for some middle-income countries, while fixed targets might be best suited for mature, industrialized economies. Both types of targets could support the use of cost-saving market mechanisms. To be successful, developing countries would need to play an active role in defining the contents of the menu, rather than simply reacting to the proposals of industrialized countries.

Such a menu-based approach would have several advantages. First, it may be the best hope of harnessing the limited political will that currently exists for climate protection. A menu of multiple options might comprise various items and choices through which countries could exercise their political will. A single option (e.g., fixed targets) might be too limiting and, consequently, the flexibility of multiple options might mobilize maximum emission reductions.

Second, a system featuring multiple options may enable Parties to gain experience, capacity, and added confidence to support greater long-term action on climate change. It might take 100 or more years to achieve the Climate Convention's ultimate objective of preventing dangerous climate change. Countries need to improve their abilities to measure, report, and manage GHGs if this objective is to be reached. SD-PAMs, Sector-CDM, and dual-intensity targets (with no compliance target, for example) could help build experience and capacity in developing countries through concrete action. A modest start could yield even larger long-term payoffs.

III. The Need for a Principled, Long-Term Framework

The near-term trust-building described above is especially important because, in all likelihood, a menu-based system is unlikely to be sufficient to address climate change over the long term. Rather, achieving the Convention's objective may require a principle-based framework, as exemplified in the Brazilian Proposal and per capita-based approaches. Several interrelated factors suggest this long-term need.

The first factor is *procedural equity*, which will become an increasingly important issue as the climate regime expands to cover more countries under GHG limitation commitments. A system of pledged, negotiated commitments (exemplified in the present regime and in the approaches discussed in Chapters 3 and 5) might place some developing countries at an inherent disadvantage because of the sheer bargaining power of the industrialized countries, and even other developing countries. The significance of this disadvantage depends, of course, on what is being bargained for. If the subject is legally binding emission limits, then many developing countries may justifiably seek a more objective framework within which to negotiate those commitments. Otherwise, doubts may persist over whether the process can deliver fair results. Even though the Brazilian Proposal and the per capita approaches do not represent universally agreed-on principles, they are nonetheless the kind of approaches that might help level the playing field and combat the underlying power structure of the international order.

A second factor is *complexity*. As pointed out by Depledge (Chapter 2), the climate regime is already highly complex. Including multiple options for participation would undoubtedly increase this complexity. Even a single approach, such as dual-intensity targets, could be complicated, perhaps characterized by country-specific indexes for target adjustments. Whether the Convention process could cope with the added complexity would depend on the time frame for reaching agreement, the capacities of the negotiating parties, and the number of countries seeking to exercise the various options. Complexity, when combined with the weak negotiating capacity of many governments, can lead to defensive negotiating postures and a culture of mistrust.

At some point, complexity can become the enemy of *environmental effectiveness*. Complexity reduces transparency and allows countries to conceal weak negotiating positions in a shroud of numbers, terminology, and other obscurities that are beyond the understanding of all but a few insiders. This, in turn, reduces the ability of governments and civil society to

expose weak negotiating positions. This phenomenon is already evident in the Kyoto Protocol. The complexity of the accounting rules for emissions and absorptions from the land-use change and forestry sectors, for example, prevents the media and the public from exercising scrutiny over government positions.

A principled, long-term framework might include a more definite overall objective (e.g., aiming for atmospheric stabilization of CO₂ at 450 ppmv), a system for differentiating GHG limitation commitments, and more robust financial commitments, among others. Such a framework is not an impossible goal, and it is one that governments and civil society should promote and analysts should explore. However, such a long-term framework would need to overcome some of the persistent barriers identified in this volume, especially with respect to differentiating GHG limitation commitments. Grubb et al. (1999) describe such proposals as offering “a logical, top-down and long-term resolution in the context of a political process that is inherently illogical, bottom-up and mostly concerned with the current or next round of commitments.” Countries tend to adopt near-term commitments that they deem economically acceptable. Some overarching principles may even conflict with other established principles, such as the need to take into account specific national circumstances, a principle that is firmly embedded in the Climate Convention. Furthermore, various principles and formulas—sometimes invoked under the guise of equity or fairness—are often designed to serve the interests of particular countries.²

Thus, an important area of future research is to explore how a long-term framework might better take into account national circumstances and thus gain wider acceptability. Two preliminary ideas emerge from this project. First, as Aslam suggests in Chapter 8, a scheme such as per capita-based entitlements could have two components—a “fixed,” equal per capita component and a second, “variable” one that accounts for national circumstances or incorporates other principles. Countries could even invoke the fairness principles they endorse in articulating the variable portion of their emission target. Second, other elements of the architecture could compensate for commitments that are overly burdensome for some countries. Technology transfer, clean energy funds, or other financing provisions could be created (or existing systems expanded) to assist countries in meeting their commitments. This approach was used in the Montreal Protocol’s architecture for protecting the stratospheric ozone layer. The Montreal Protocol adopted uniform reductions of ozone-depleting substances from historical levels (although with a grace period for developing-country

groups) and then created a multilateral fund to finance those phase-outs in developing countries. The acceptability was due not to the targets per se but to the mixture of the targets, a grace period, and a credible financial mechanism.

Overall, the preceding analysis suggests a two-track strategy. A near-term component might leave open several options for country participation. Yet a parallel strategy that aims at a more coherent and principled long-term framework for climate protection should accompany this strategy. For example, an agreement on a near-term menu approach might be accompanied by a timetable for negotiating a principled, longer-term framework. In both tracks, promoting equity and environmental effectiveness will require using a suite of elements in the climate protection architecture, including financial commitments for investment in clean energy or compensation for adverse climate impacts suffered by the poor. Here, creativity and innovation are possible and indeed may be necessary.

IV. Lessons for Building an Effective and Fair Climate Protection Architecture

Key lessons that emerge from the above discussion and the entire volume of studies include the following:

The current regime provides a solid foundation on which to build.

Both the Convention and the Kyoto Protocol include the necessary foundations for further developing the climate regime. These include provisions both for developing countries to individually accede to fixed emission targets and for the launch of a comprehensive negotiating round, whose results could encompass any of the options discussed in this volume (and others not examined here). Even if new options for GHG limitation commitments are adopted in a new negotiating round, the Protocol's reporting and review systems, as well as its flexibility mechanisms, provide a sound basis for future development.

The climate regime needs stronger leadership and U.S. participation.

The weakness of industrialized country leadership—especially the United States, which has repudiated the Kyoto Protocol—is the greatest barrier to fruitful North-South cooperation. Without greater action by the United States, the approaches examined within this volume are unlikely to be viable. Specifically, Sector-CDM requires deeper emission cuts from in-

dustrialized countries to generate demand for Sector-CDM projects in developing countries. Implementation of SD-PAMs would depend on industrialized-country funding. Emission targets (fixed or dynamic) are not remotely feasible in developing countries without a prior demonstration of industrialized country leadership, as called for in the Climate Convention. Generally, the actions of the United States illustrate the broader limitations of the international legal order. There are simply no tools readily available to force recalcitrant countries into more climate-friendly behavior. In this way, international negotiations are no different than geology: time and pressure are needed to drive change.

While industrialized-country leadership is needed, this requirement should not preclude developing countries from exercising their own leadership. In fact, there is a route out of the current stalemate—the United States, other industrialized countries, and some high-emitting developing countries might participate together in the next round of mitigation commitments, albeit under a differentiated system in which industrialized countries make the most substantial commitments. Waiting for the United States to re-engage may be in no one's interest. There is an opportunity for developing countries to help define the terms of their future participation, to shape their involvement in a way that promotes their development objectives while slowing emissions growth. In fact, the ideas and insights in this volume are largely those of analysts from developing countries, and many of the approaches examined can be shaped in a way that would support development objectives.

Information systems and capacity in developing countries need strengthening.

Another major barrier to expanding the climate regime to include GHG limitation commitments in developing countries is the paucity and poor quality of climate change-related data and information. Sound decisions require a strong information base. As Depledge pointed out in Chapter 2, many developing countries have not yet submitted their first national reports under the Convention. This highlights the need for a massive international effort to improve the collection and analysis of emissions data in developing countries. The weak information base also extends to national mitigation and adaptation assessments. The sharing of benefits and burdens is central to the negotiation of a climate protection architecture and specific national commitments. Yet, it is difficult to talk about sharing burdens and benefits without more information about their actual magni-

tude. Progress on information systems will require capacity building and financial and technical assistance.

For Argentina (Chapter 6), the formulation of a voluntary target showed the importance of domestic capacity in economic modeling and emissions inventories, among other areas. Estimates by outside experts are unlikely to be sufficient to shape important national decisions that might entail future obligations and associated costs. Approaches such as the Sector-CDM or non-binding targets might support capacity building at the national level. Targeted and effective North-South transfers (financial resources, skills, etc.) are clearly needed to support future actions by developing countries. However, successful capacity building also requires developing countries to make political commitments that mobilize and enhance the existing expertise, as Chapter 6 makes clear.

Successful implementation requires domestic buy-in and acceptance.

Argentina's experience with a voluntary target highlights the importance of national buy-in for internationally agreed measures. Without domestic public understanding of the issue, as well as support and coordination among the multiple sectors involved, implementation of an international commitment may fail. Had Argentina's voluntary commitment been accepted by other countries, the lack of domestic support, coupled with the economic crisis and changes in political leadership, would have made implementation difficult or impossible. Garnering support from different political constituencies, key industries, provincial governments, and the public will improve the viability of any approach. The difficulty of achieving buy-in on a relatively low-priority issue such as climate change highlights the broader challenges of North-South cooperation. A climate proposal's acceptance in a developing country will likely be based on its contribution to domestic priorities. Thus, approaches that can provide such tangible benefits while also assisting in climate protection—such as SD-PAMs and Sector-CDM—may be more likely to find domestic support in the near term.

In the North and the South, governments and civil society have important roles to play in increasing public concern for the issue of climate change and articulating the relationship between climate protection and other important priorities, such as local pollution and poverty. Greater interest in and concern for climate protection in general will help enable the public to make informed contributions to national strategies for climate protection.

Simplicity is a virtue.

Simplicity promotes transparency, fairness, and good-faith negotiating. A drawback of the menu approach described above is that the complexity of the negotiations could become overwhelming. There is an apparent trade-off between simplicity and meeting Parties' diverse interests. One hope for limiting the complexity of a menu-based approach is to promote simplicity within each of the menu's options. For example, if countries decide to pursue dual-intensity targets, they should settle on a few transparent options for target adjustment. Otherwise, each country will formulate its own target, devising formulas that few others will understand, similar to the case of Argentina (see Chapter 6).

Another possible way to promote simplicity would be to establish a trigger (or multiple triggers) that would signal the need for a country to take greater action. Under any number of triggers—based on capability, responsibility, or even current GHG emissions—most developing countries would probably be exempt from serious actions. Establishing these kinds of participation thresholds could help focus attention on the relatively few countries that are large current or future contributors to climate change. As pointed out in Chapter 1, many developing countries have made very little contribution to the buildup of GHGs in the atmosphere.

A two-track future approach might best balance interests, simplicity, and fairness.

Different approaches to climate protection tend to address one or several of Parties' key concerns or interests, such as the need to reduce uncertainty, promote investment, account for national circumstances, establish procedural fairness, and differentiate GHG limitation commitments across countries. Through different elements of the architecture, many of these interests can be accommodated simultaneously. As described earlier in this chapter, combining some of the approaches (e.g., different kinds of targets, Sector-CDM, and SD-PAMs) could help constitute a near-term strategy that responds to the diverse interests and circumstances of Climate Convention Parties. One element of the architecture—financial mechanisms (e.g., funds for technology transfer, clean energy, and compensation)—will be critical for acceptable compromises and might be coupled with emission targets or other commitments.

Over the longer term, complexity and procedural equity suggest the need for a simpler, more coherent framework. This framework could be explored and developed in parallel with a near-term response strategy.

However, no such long-term framework exists (although the Brazilian Proposal is being discussed officially), and it is uncertain what an acceptable one might look like. This constitutes an important area for future research. The most important prospective element of such a framework might be greater clarity on a long-term environmental goal. Other important elements include a framework for shaping emission limits or other commitments for countries with diverse national circumstances and a financial transfer mechanism that addresses mitigation and adaptation needs. To the extent that countries adopt near-term actions that build confidence and trust, the viability of such a long-term climate protection strategy increases.

From the vantage point of the 1992 Earth Summit in Rio de Janeiro, where the Climate Convention was born, one might have looked ahead 10 years and imaged a relatively simple evolution of the climate change regime. Such an evolution might have been similar to other multilateral environmental agreements, perhaps characterized by relatively fixed emission reductions and financial mechanisms. After all, even by 1992, governments had a fair bit of experience and success in dealing with transboundary air pollution and ozone-depleting gases.

Such a view seems naïve today. Climate change is a highly complex issue, characterized by pervasive scientific and economic uncertainties, long time horizons, potentially irreversible change, and a common atmospheric resource shared by 6 billion people and nearly 200 countries. Likewise, climate change mitigation is tethered to economic development and human welfare issues as well as entrenched political interests. Although many of these characteristics of the problem were known 10 years ago, today we have a better sense of the limited capacity of national and global institutions to respond effectively to the challenge. Because today's institutions are relatively poorly equipped to deal with a problem of this scale, creativity and innovation may be needed in designing future solutions. This might be especially true in the near term, where building confidence and experience with emission reductions might pave the way for more effective longer-term solutions. This is the primary reason for examining a diversity of options for a pragmatic, fair, and environmentally effective climate future.

Notes

1. The exception, of course, is Chapter 2, which describes the current climate protection regime.
2. An interesting example of how principles and formulas are invoked to serve country interests can be found in the recent World Trade Organization (WTO) debate on agricultural subsidies (Blustein 2002). The United States has made a proposal that industrialized countries reduce their “trade-distorting” agricultural subsidies under the WTO according to a particular formula (specifically, to 5 percent of a country’s farm output). This formula would require the United States to reduce its subsidies from \$19 to \$10 billion per year, while the European Union (EU) and Japan would be required to cut subsidies from \$60 to \$12 billion and from \$33 to \$4 billion, respectively. According to U.S. Trade Representative Robert Zoellick, “Those with the highest barriers and subsidies must cut the most, as is only *fair*” (emphasis added). This formula is not considered “fair” by the EU in this context. Likewise, a similar approach applied in the context of reducing GHG emissions (“those with the highest, cut the most”) might not be considered fair by the United States.